UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

DEC 10 2013

Herschel T. Vinyard
Secretary
Florida Department of Environmental Protection
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Dear Secretary Vinyard:

The U. S. Environmental Protection Agency has completed its review of the site specific alternative criteria (SSAC) for total phosphorus (TP) and total nitrogen (TN) for the Eau Gallie River. The Florida Department of Environmental Protection submitted the SSAC to the EPA on July 31, 2013 as new or revised water quality standards with the necessary certification by the FDEP general counsel, pursuant to 40 CFR Part 131. The SSAC are site specific numeric interpretations of paragraph 62-302.530(47)(b), Florida Administrative Code (F.A.C.), referenced in paragraph 62-302.531(2)(a), F.A.C. FDEP submitted the numeric interpretations of the state narrative nutrient criterion for WBID 3107A expressed in the Eau Gallie River Total Maximum Daily Load report as the SSAC. FDEP intends for these SSAC to serve as the numeric nutrient criteria for TN and TP for the Eau Gallie River.

In accordance with section 303(c) of the Clean Water Act, I am hereby approving the SSAC for the Eau Gallie River as revised water quality standards for TN and TP. Any other criteria applicable to this waterbody remain in effect. The requirements of paragraph 62-302.530(47)(a), F.A.C. also remain applicable. The details of the SSAC are discussed in the enclosed documentation. We would like to commend you and your staff for your continued efforts in environmental protection for the State of Florida.

If you have any questions regarding the EPA's approval, please contact me at (404) 562-9345 or have a member of your staff contact Ms. Annie M. Godfrey, Water Quality Standards Section Chief at (404) 562-9967.

Sincerely,

James D. Giattina
Director
Water Protection Division

Enclosure

cc: Matthew Z. Leopold, FDEP
Daryll Joyner, FDEP

Decision Document for Hierarchy 1 Site Specific Alternative Criteria for Eau Gallie River WBID 3082

Summary Information

WBID	Description	Class	Waterbody Type	Listing Parameter
3082	Eau Gallie River	Class III estuary	Marine	Nutrients (dissolved oxygen and corrected chlorophyll *a* (ChlaC))

A nutrient and dissolved oxygen (DO) Total Maximum Daily Load (TMDL) for the Eau Gallie River WBID 3082 was developed by the Florida Department of Environmental Protection, pursuant to section 303(d) of the Clean Water Act (CWA). This TMDL was developed to identify the level of nutrients that would prevent an imbalance of flora and fauna as required by the state's narrative nutrient criterion at paragraph 62-302.530(47)(b), Florida Administrative Code (F.A.C). FDEP determined that the total phosphorus (TP) load of 4,307 pounds per year (lbs/yr) and the total nitrogen (TN) load of 28,842 lbs/yr, not to be exceeded as annual loads, would meet its narrative criterion. The TP and TN loads were adopted as TMDL values at subsection 62-304.520(15), F.A.C., on June 7, 2013. FDEP has submitted the TN and TP loads for EPA review as hierarchy 1 site specific alternative nutrient criteria (SSAC) for Eau Gallie River WBID 3082, pursuant to section 303(c) of the CWA and EPA's implementing regulations at 40 CFR Part 131. This decision document approves the SSAC for a TP load of 4,307 lbs/yr and a TN load of 28,842 lbs/yr, not to be exceeded as annual loads, as hierarchy 1 criteria for Eau Gallie River WBID 3082. Any other criteria applicable to this waterbody remain in effect including the requirements of paragraph 62-302.530(47)(a), F.A.C.

In a letter dated July 31, 2013, from Matthew Z. Leopold, General Counsel for FDEP, to A. Stanley Meiburg, Acting Regional Administrator of EPA's Region 4 Office, FDEP submitted the numeric interpretations of the state narrative nutrient criterion as expressed in the Eau Gallie River WBID 3082 TMDL as the SSAC for the Eau Gallie River WBID 3082. These SSAC serve as the primary site specific interpretations of Florida's narrative water quality criterion for nutrients set out in paragraph 62-302.530(47)(b), F.A.C., in accordance with paragraph 62-302.531(2)(a), F.A.C. Pursuant to section 303(c) of the CWA, these revised water quality standards are subject to review and approval by the EPA since FDEP intends for these SSAC to serve as numeric nutrient criteria for TN and TP for Eau Gallie River WBID 3082. In the July 31, 2013, letter, the FDEP General Counsel certified that the revised water quality standards were duly adopted pursuant to Florida law.

The EPA's decision to approve these criteria is subject to the results of consultation under section 7 of the Endangered Species Act with the U.S. Fish and Wildlife Service and National Marine Fisheries Service. By approving the standards "subject to the results of consultation," the EPA retains its discretion to take appropriate action if the consultation identifies deficiencies in the standards requiring remedial action by the EPA. The EPA will notify FDEP of the results of the section 7 consultation upon completion of the action.

Description of waters for which the SSAC have been proposed

The Eau Gallie River is located in the northern part of City of Melbourne, Brevard County. It flows primarily in an easterly direction into the Indian River Lagoon (IRL). A spillway located about 1.6 miles from the river mouth separates the river into upstream freshwater and downstream saltwater segments. The river also receives flow coming from Elbow Creek, which discharges into the main stem of the river from the south. The Eau Gallie River watershed is highly developed with the majority of the watershed areas occupied by urban land uses. The Eau Gallie River is a Class III marine waterbody, with designated uses of recreation, propagation, and maintenance of a healthy, well balanced population of fish and wildlife.

The IRL is a 156-mile long estuary located on Florida's East Coast (see map on page 4). The majority of the basin area is located between Interstate Highway I-95 and the central portion of the Atlantic coastline of Florida. The basin is well developed, with close to 30 percent of the non-water areas being occupied by urban and built-up lands. About 20 municipalities and townships are located in the basin, among which are New Smyrna Beach, Titusville, Cocoa Beach, Melbourne, Palm Bay and Vero Beach.

Discussion of how the loads were derived

The Eau Gallie River was verified for nutrient impairment during FDEP's Cycle 1 water quality assessments based on the observation that the annual average ChlaC concentration exceeded the 11 µg/L assessment threshold in 1999, 2000, 2001, 2002 and 2005. For the Eau Gallie River the Cycle 2 water quality assessment verified that nitrogen is the limiting nutrient that caused the observed nutrient impairment. To address the nutrient impairment in WBID 3082, FDEP developed a TMDL dated November 20, 2012. The Nutrient TMDL for Eau Gallie River WBID 3082 was adopted at 62-304.520(15), for a TP load of 4,307 lbs/yr and TN load of 28,842 lbs/yr, not to be exceeded as annual loads.

FDEP utilized a ChlaC concentration derived from the receiving water body, the central IRL. FDEP adopted the 2004 South Indian River Lagoon Final Integrated Project Implementation Report and Environmental Impact Statement (IRL-S Plan) TN and TP targets to protect seagrass as identified in the IRL-S Plan. The IRL-S Plan developed nutrient targets at Roosevelt Bridge (WBID 3913) that were considered protective of healthy seagrass beds in the lagoon. TP values were calculated based on the adjusted mean TP of all Florida estuaries, less some estuaries with high geologic inputs of phosphorus. TN values in the IRL-S Plan were identified based on the work of Chamberlain and Hayward (1996), which called for a 30 percent TN reduction (yielding a concentration of 0.721 mg/L with 1999-2004 data). The IRL-S Plan nutrient concentrations were reassessed by FDEP and the South Florida Water Management District in light of additional new water quality data. Based on this further assessment, FDEP validated the findings of the IRL-S Plan by comparing median 2000-2007 concentrations of TN, TP, and chlorophyll *a* (chl *a*) data for all estuaries in the state. The IRL-S TN and TP concentration targets developed for the most downstream WBID 3193 at Roosevelt Bridge were used as targets in the Indian and Banana River Lagoon TMDLs and St. Lucie TMDL and are appropriate for Eau Gallie River WBID 3082. The nutrient targets for TN of 0.72 mg/L and for TP of 0.081 mg/L that were developed in the IRL-S study are applicable to Eau Gallie River WBID 3082 and were used to develop the TN and TP loading targets for Eau Gallie River.

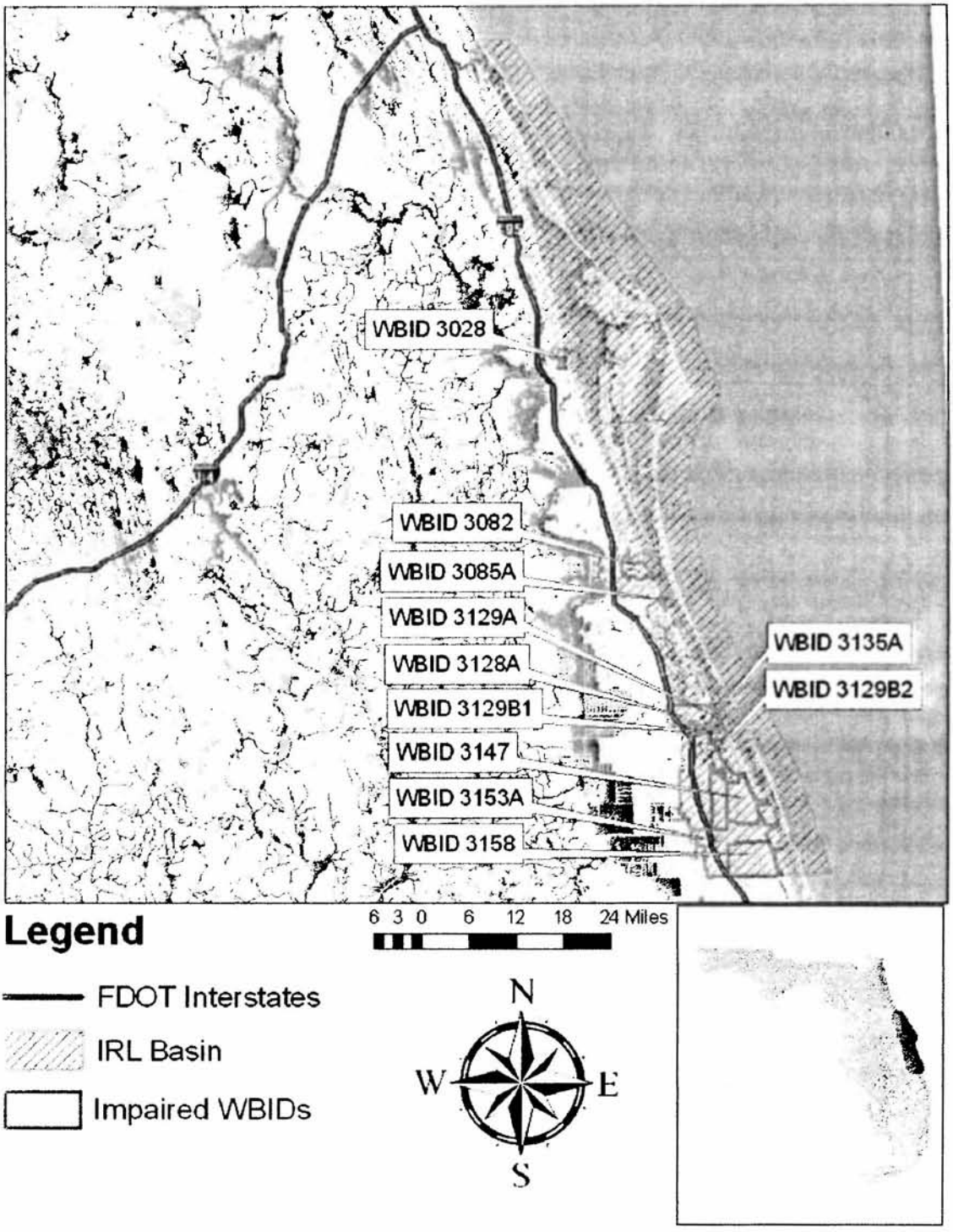
The tidal portion of the Eau Gallie River consistently showed high annual average chl *a* concentrations, which are not only higher than the 11 µg/L assessment threshold, but also higher than the chl *a* concentrations observed in most major tributaries into Indian River Lagoon. The percent reductions required for the watershed to achieve the target nutrient loads by the main stem seagrass nutrient TMDLs for this area are 35% reduction of TN and 48% reduction of TP. Because 90% of the Eau Gallie River watershed is occupied by anthropogenic lands and close to 80% of the total watershed is occupied by urban lands, a significant portion of the nutrient reduction needs from the general drainage areas discharging to main stem north Indian River lagoon segment may come from the Eau Gallie River watershed. Therefore, for the purpose of protecting the seagrass in Indian River Lagoon main stem, the actual reduction needs from the Eau Gallie River watershed are higher than the TMDL reductions for the Indian River Lagoon. The reductions being established for the Eau Gallie River are 51% reduction of TN and a 58% reduction of TP for nonpoint source loads from the watershed of the river based on HSPF model simulation results for the period from 1996 through 2005. These nutrient targets are expected to restore balance to the flora and fauna in the Eau Gallie River as well as the downstream estuary system based on the use of the sensitive endpoint of seagrass bed restoration.

Consideration of TMDL loads as SSAC values

For this waterbody FDEP chose a prescriptive endpoint of healthy seagrass beds to protect the designated uses of the waterbody. Seagrass depth targets were developed to control nutrients and restore seagrass in the IRL based on models linking phosphorus and nitrogen loads to seagrass depth targets (Steward et al. 2005). FDEP used a conceptual model to relate seagrass health through a series of steps back to input of TN and TP. The steps in the pathway consist of: (1) seagrass growth and reproduction, as controlled by (2) seagrass light requirements, which are in turn affected by (3) light attenuation in the water column that results in part from (4) chl *a* which is influenced by (5) TN and TP loads. The seagrass depth targets allow for no more than 10 percent departure from natural background conditions. It is expected that achieving the seagrass restoration target will restore healthy seagrass communities and provide healthy habitat for fish and other aquatic organisms in the Eau Gallie River, as well as the IRL. The TMDL loads for TP of 4,307 lbs/yr and TN of 28,842 lbs/yr, not to be exceeded as annual loads, are expected to restore balance to the flora and fauna in Eau Gallie River.

Conclusion

Based on the chemical, physical and biological data presented in the development of the SSAC, the EPA concludes that the SSAC for TN and TP established for the Eau Gallie River WBID 3082 protect healthy, well-balanced biological communities in the waters to which the SSAC apply and are consistent with the CWA and its implementing regulations. More specifically, the SSAC are consistent with both 40 CFR 131.11(b)(1)(ii), and the EPA's 304(a) guidance on nutrient criteria. The TN and TP SSAC for Eau Gallie River WBID 3082 will protect water quality and aquatic life. Paragraph 62-302.531(4) will apply to this WBID in conjunction with the SSAC to ensure attainment and maintenance of water quality standards of downstream waters, in accordance with 40 CFR 131.10. In accordance with section 303(c) of the CWA, the SSAC for Eau Gallie River WBID 3082 for TP of 4,307 lbs/yr and for TN of 28,842 lbs/yr, not to be exceeded as annual loads, are hereby approved as consistent with the CWA and 40 CFR Part 131.



WBID 3082 is Eau Gallie River